Description of a new species from Indonesia in the *Murex scolopax* group (Mollusca: Gastropoda: Muricidae) and comments about *Murex (Murex) ternispina* Lamarck, 1822 from East Java

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KEYWORDS. Gastropoda, Muricidae, Moluccas, Arafura, East Java, *Murex* s.s., new species, new colour form.

ABSTRACT. *Murex spinastreptos* n.sp. is described from Indonesia and compared with *Murex occa* Sowerby, 1834 and *M. coppingeri* Smith, 1884. A rare colour form of *M. ternispina* Lamarck, 1822 from Java is commented on and illustrated.

RESUME. *Murex spinastreptos* n.sp. est décrit d'Indonésie et est comparé à *Murex occa* Sowerby, 1834 et à *M. coppingeri* Smith, 1884. Une variété de couleur de *M. ternispina* Lamarck, 1822 de Java est commentée et illustrée.

INTRODUCTION. Radwin & D'Attilio (1976) listed 17 Indo-West Pacific species in the genus *Murex*. From these taxa, 10 were transferred to other genera or subgenera by Ponder & Vokes (1988), Houart (1992) and Houart (1999). The seven remaining species in Radwin & D'Attilio (1976) are: *M. brevispina* Lamarck, 1822, *M. coppingeri* E. A. Smith, 1884, *M. pecten* Lightfoot, 1786, *M. scolopax* Dillwyn, 1817, *M. trapa* Roding, 1798, *M. tribulus* Linnaeus, 1758 and *M. troscheli* Lischke, 1868.

Afterwards, the genus *Murex* s.s. was revised by Ponder & Vokes (1988) who named nine new species or subspecies. They also reconsidered the classification of Radwin & D'Attilio (1976) and reinstated several names considered as synonyms or not listed by these authors, bringing the total of species and subspecies in *Murex* s.s. to 26. Two species were not recognized in Ponder & Vokes (1988), one, *Murex concinnus* Reeve, 1845, considered as synonym, the other, *Murex surinamensis* Okutani, 1982, was originally described from Suriname, in the Western Atlantic.

A neotype was designated for *M. concinnus* in Parth (1990: 42), who separated the taxon at the specific level and *Murex surinamensis* was proved to originate from the Saya de Malha Bank, in the Indian Ocean by Bouchet & Bail (1991: 160) and Okutani (1991: 165).

Five new species were described after 1988, updating the total of *Murex* s.s. species from the Indo-West Pacific to 33, which is here increased to 34 with the new species described below.

Repository

IRSNB. Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium.
MNHN. Muséum national d'Histoire naturelle, Paris, France.
RH. Collection of the author.

P :	Primary cord
s :	secondary cord
ad :	adapical
ab :	abapical
IP :	Infrasutural primary cord (primary cord on subsutural ramp)
adis :	adapical infrasutural secondary cord (on subsutural ramp)
abis :	abapical infrasutural secondary cord (on subsutural ramp)
P1 :	Shoulder cord
P2-P6 :	Primary cords of the convex part of the teleoconch whorl
s1-s6 :	secondary cords of the convex part of the teleoconch whorl
example: s1 = secondary cord between P1 and P2; s2 = secondary cord between P2 and P3, etc.	
ADP :	adapertural primary cord on the siphonal canal
MP :	median primary cord on the siphonal canal
ABP :	abapertural primary cord on the siphonal canal
EAB :	extreme abapertural primary cord on the siphonal canal
EAB1 :	extreme abapertural primary cord 1 on the siphonal canal

EAB2 :	extreme abapertural primary cord 2 on the siphonal canal
Example: EAB1 = between EAB and EAB2	
ads :	adapertural secondary cord on the siphonal canal
ms :	median secondary cord on the siphonal canal
abs :	abapertural secondary cord on the siphonal canal
eabs :	extreme abapertural secondary cord on the siphonal canal
eabs1 :	extreme abapertural secondary cord 1 on the siphonal canal
eabs2 :	extreme abapertural secondary cord 2 on the siphonal canal
Example: eabs1 = secondary cord between EAB and EAB1	
APERTURE	
ID:	Infrasutural denticle
D1 to D6:	Abapical denticles

Terminology in parentheses: erratic feature.

Table 1. Terminology used to describe the spiral cords (based on Merle, 1999 and 2001)

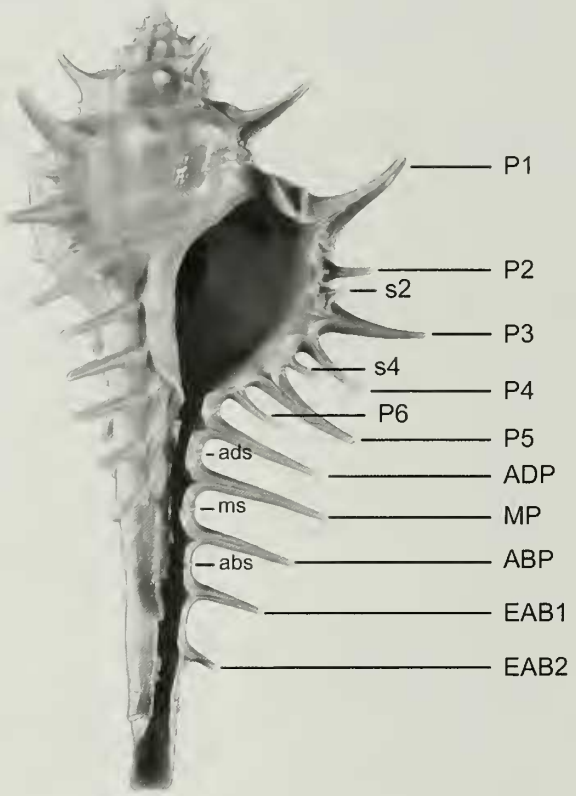
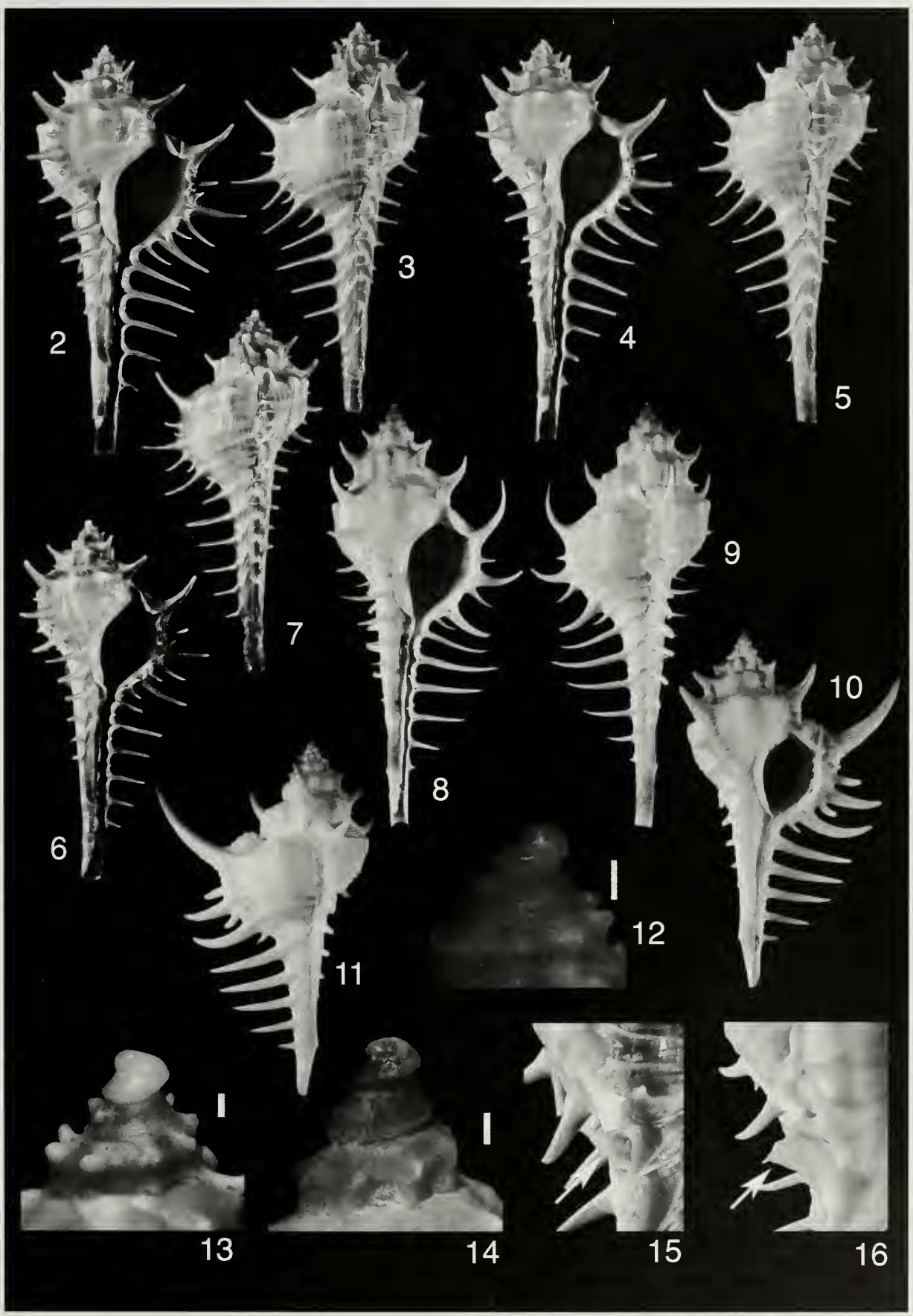


Fig. 1. Terminology used in *Murex (Murex) spinastreptos* n.sp.

Figures 2-16 (Protoconch: scale bar 0.5 mm)

2-7. *Murex (Murex) spinastreptos* n.sp.
2-3. Moluccas, from fishermen, 20-40 m, holotype IRSNB 31.468/MT2204, 59.5 mm; **4-5.** Arafura Sea, from fishermen, 15-25 m, paratype RH, 60.7 mm; **6-7.** Arafura Sea, from fishermen, 15-25 m, paratype MNHN 22715, 53 mm.
8-9. *Murex (Murex) occa* Sowerby, 1834, Thailand, Satul, crab nets, 5-10 m, in muddy sand, RH, 60.8 mm.
10-11. *Murex (Murex) coppingeri* Smith, 1884, Darwin, Northern Territory, Australia, RH, 54.3 mm.
12. Protoconch of *Murex (Murex) spinastreptos* n.sp.
12. Paratype RH; **13.** Paratype MNHN.
14. Protoconch of *Murex (Murex) occa* Sowerby, 1834 (specimen figured here); **15.** Labral tooth of *Murex (Murex) spinastreptos* n.sp.; **16.** Labral tooth of *Murex (Murex) occa* Sowerby, 1834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SYSTEMATICS

Family **MURICIDAE** Rafinesque, 1815
Subfamily **MURICINAE** Rafinesque, 1815
Genus ***Murex*** Linnaeus, 1758
Subgenus *Murex* s.s.
Type species by subsequent designation (Montfort, 1810): *Murex tribulus* Linnaeus, 1758, as *Murex pecten* Montfort, 1810 (not Lightfoot, 1786), Recent, Indo-West Pacific.

Murex (Murex) spinastreptos n.sp.
Figs 1, 2-7, 12-13, 15

Type material. Moluccas, 20-40 m, by fishermen, 59.5 mm, holotype IRSNB IG 31.468/MT2204; Arafura Sea, 15-25 m, by fishermen, 53.0 mm paratype MNHN 22715: 60.7 mm, paratype RH (all live taken).

Type locality. Indonesia, Moluccas, 20-40 m.

Distribution. Arafura Sea and Moluccas, living at 15-20 m.

Description. Shell small for the genus, up to 60.7 mm in length. Lengh/width ratio: 1.92-2.14:1. Slender, spinose, weakly nodose, lightly built. Subsutural ramp weakly sloping, straight or weakly concave.
Shell light or dark greyish-tan with lighter coloured spiral cords and threads, light cream coloured nodes between axial varices and varical spines topped with light cream abaperturally, obviously extended on spiral cords of siphonal canal. Abapical extremity of siphonal canal darker coloured. Outer lip of aperture dark brown within, bordered with a glossy white band with small brown blotches between crenulations and on anal notch. Columellar lip bordered with white, light brown and white within.
Spire high with 2.15-2.5 protoconch whorls and teleoconch up to 5 broad, angulated, strongly shouldered spinose whorls. Suture weakly impressed. Protoconch large, broad, irregularly shaped, first whorl smooth, second and last whorls with a single strong narrow keel abapically. Terminal lip thin, low, oblique, weakly curved, almost straight.
Axial sculpture of teleoconch whorls consisting of low lamellate ribs, rounded varices and intervarical nodes: first whorl with 8 lamellate ribs, second with 8 lamellate ribs changing to varices and intervarical nodes at the end of whorl, third, fourth and last whorl with 3 spinose, low rounded varices and 2 narrow intervarical nodes between each pair of varices. Spiral cords of low smooth primary and secondary cords and few weak threads: first and second whorls with visible P1 and P2; third whorl with P1 and narrow P2; fourth whorl with adis, IP, abis, P1, s, P2; last whorl with adis, IP, abis, P1, s1, P2, s2, P3, P4, s4, P5, P6, (s6). Spiral cords extending as acute open spines on varices. P1, P3 and P5 longest spines of last whorl, P2 shortest, very tiny on previous whorls.
Aperture broad, ovate. Columellar lip narrow, smooth except knobs of ADP, MP and ABP in transparency. Rim very weakly erect abapically, otherwise adherent. Anal notch deep, broad. Outer lip erect, crenulate, with narrow weak labral tooth between P4 and s4 and low elongate denticles within, giving rise to short crenulations on outer lip: ID split, D1 split, D2, D3 (D4 to D6 obsolete). Siphonal canal long, broad, straight, open, with ADP, ads, MP, ms, ABP, abs, EAB1, (eabs1), EAB2, (eabs2), (EAB3). Primary cords giving rise to long or short, straight, abaperturally bent, spines: ADP and MP approximately similar in size, ABP, EAB1, EAB2, and EAB3 when present, decreasing in length abapically.
Operculum and radula unknown.

Remarks. *Murex (Murex) spinastreptos* n.sp. undoubtedly belongs to what is named the *Murex scolopax* group by Ponder & Vokes (1988: 49) and which now includes the following seven Recent species:
- *Murex scolopax* Dillwyn, 1817 from the southern part of the Red Sea, the Gulf of Aden and the Persian Gulf.
- *Murex occa* Sowerby, 1834 from Thailand, Malaysia, Sumatra and Java.
- *Murex acanthostephes* Watson, 1883 from Carnarvon (Western Australia) to the Torres Straits (Queensland, Australia).
- *Murex poppei* Houart, 1979 known from a small area between Thailand, Sumatra and Borneo.
- *Murex altispira* Ponder & Vokes, 1988 from Thailand and the Philippine Islands.
- *Murex somalicus* Parth, 1990 from Northern Somalia to Djibouti.
- *Murex megapex* Neubert, 1998 from the Gulf of Aden.

All these species have a few shell characters in common: a more or less smooth surface, few broad spines on the siphonal canal, more or less angulated teleoconch whorls, and a broad irregularly shaped protoconch of variable size, with a more or less strongly keeled last whorl, denoting a probable intracapsular larval development, corroborated by their restricted geographical distribution.
Murex (Murex) spinastreptos n.sp. differs from the most related closely species, namely *Murex occa* (Figs 8-9, 14 and 16), in having comparatively broader teleoconch whorls, weakly broader, shorter and chiefly straighter varical spines, especially noticeable on the siphonal canal, *M. occa* having strongly upward curved shoulder spines and relatively long, curved spines on the siphonal canal. *M. (M.) spinastreptos* also has a relatively broader siphonal canal and a narrower labral tooth (Figs 15-16).
All the other species of this group differ in many other aspects, including length, width, and outline of the

shell, teleoconch whorls, spines and labral teeth and do not need to be compared here.
Another species *M. (M.) coppingeri* Smith, 1884 (Figs 10-11), also occurring in the Arafura Sea, can be confused with *M. spinastreptos* n.sp. due to its small size, angulated teleoconch whorls and broad spines, however it is definitively different, having a conical protoconch of 3 smooth whorls, denoting a probable planktotrophic larval development. *M. coppingeri* also has longer, more curved and broader varical spines, a less prominent labral tooth and a siphonal canal with tapered adapical extremity.

Etymology. *Spina* (L): spine and *streptos* (G): straight. Named after the distinctive straight spines and the straight siphonal canal.

Murex (Murex) ternispina Lamarck, 1822
Figs 17, 19-21, 24-26

Murex ternispina Lamarck, 1822: 158.
Murex nigrospinosus Reeve, 1845: pl. 20, fig. 79.
Murex ternispina Ponder & Vokes, 1988: 80, Figs 41-43, 77J, 86 C (only); Table 31.

Distribution: From Sri Lanka to Southeast Asia, south of Japan and throughout Indonesia.

Diagnosis. Shell up to 117 mm in length with an average size of 70-90 mm, with 2-2.25 protoconch whorls and 6 or 7 teleoconch whorls. Protoconch small, whorls rounded, last whorl with narrow keel abapically, otherwise smooth, glossy.
Siphonal canal long, broad, straight, open, with 5-7 acute, long spines.
Colour creamy-white, light tan or light brown, tip of primary spines usually tinged with purple. Aperture white.

Remarks. *Murex ternispina* is easily distinguishable from other species of *Murex* s.s. by its very nodulose shell sculpture, broad and straight spines on teleoconch whorls, and usually dark purple coloured tip of primary spines, in the absence of spinelets on the siphonal canal, and in its concentrically foliate operculum with subcentral nucleus.
The specimen illustrated by Ponder & Vokes (1988: Fig. 86B only) from the Solomon Islands turned out to be another species, named later *Murex salomonensis* Parth, 1994 (Figs 18, 22-23). *Murex salomonensis* is related to *M. ternispina* Lamarck, 1822, although the shell of *M. salomonensis* has weaker axial sculpture and a different protoconch (see Figs 17 and 18). Moreover, the dark purple tinge on the primary spines is situated approximately in the middle of each spine in *M. salomonensis*, while it is situated at the tip of the spines in *M. ternispina*.

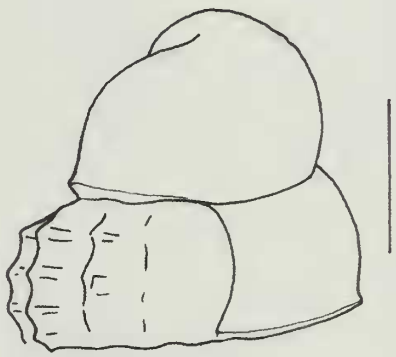

Fig. 17. *Murex ternispina*, protoconch, Philippines. Scale 0.5 mm.

Fig. 18. *Murex salomonensis*, protoconch, Papua New Guinea. Scale 0.5 mm.

A beautiful colour form of *M. ternispina* with very dark coloured varices and spines, from Kangean Islands, off east Java (Figs 24-26), was sent to me for identification. Unfortunately the protoconch was eroded in the 3 specimens examined but all other shell morphology characters conform with the typical form.

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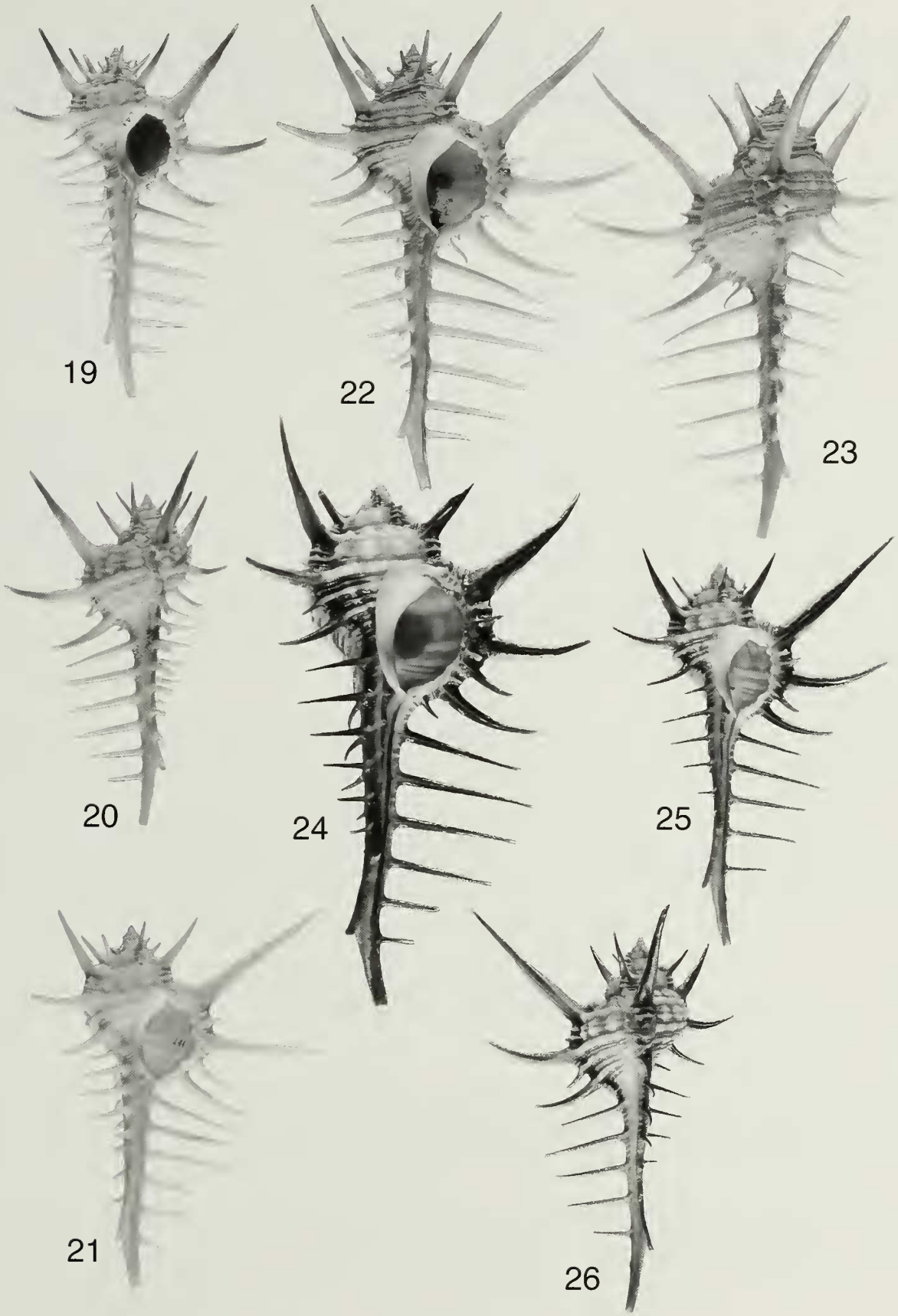
Figures 19-26

19-21. *Murex (Murex) ternispina* Lamarck, 1822, Cebu, Philippines, RH (19-20. 71 mm; 21. 72 mm);
22-23. *Murex (Murex) salomonensis* Parth, 1994, Madang, Papua New Guinea, 40-60 m, RH, 86.2 mm;
24-26. *Murex (Murex) ternispina* Lamarck, 1822, Kangean Islands, about 60 km northern side of E Java, 10-20 m, sandy bottom, coll. T. Tirtadinata (24. 104.5 mm; 25-26. 79.7 mm).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